

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/707,874	REDFERN, ARTHUR J.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason M. Perilla	2638	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed December 2, 2004.
2. ☒ The allowed claim(s) is/are claims 2, and 4-7 renumbered as claims 1-5.
3. ☒ The drawings filed on 07 November 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20050812</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                     | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|  | 9. <input type="checkbox"/> Other _____.   |

### EXAMINER'S AMENDMENT

1. Claims 2, 4-7, and 14-16 are pending in the instant application.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Wade Brady III (32080) on August 12, 2005.

The application has been amended as follows wherein the following versions of claims 2, and 4-7 replace all prior versions in their entirety and claims 14-16 are cancelled:

2. The method of canceling communication system noise interference according to claim 4 wherein steps (b)-(d) [[b-d]] are repeated for each subchannel  $n$  of the predetermined subchannels used to transmit the received  $T$  blocks of data.

4. A method of canceling communication system noise interference, the method comprising the steps of:

(a) receiving  $T$  blocks of data,  $Y(:, t)$ ,  $t=1, \dots, T$ , comprising  $T$  blocks of data,  $X(:, t)$ ,  $t=1, \dots, T$ , transmitted over predetermined subchannels;

(b) determining a set of the predetermined subchannels,  $k(n)$ , to generate coefficients for the a multichannel frequency domain equalizer (FEQ) for of a subchannel  $n$  of the predetermined subchannels;

(c) generating multichannel FEQ coefficients,  $g(n)$ , for the  $n^{\text{th}}$  subchannel  $n$  of the predetermined subchannels used to transmit the received  $T$  blocks of data; and

(d) performing multichannel (FEQ) frequency domain equalization for the subchannel  $n$  using the generated multichannel FEQ coefficients;

Art Unit: 2638

wherein the step of determining a the set of the predetermined subchannels,  $k(n)$ , for a the subchannel  $n$  used to transmit the  $T$  blocks of data includes selecting subchannel  $n$ ;

wherein the step of determining a the set of the predetermined subchannels,  $k(n)$ , for a the subchannel  $n$  used to transmit the  $T$  blocks of data further includes selecting neighboring subchannels to the subchannel  $n$ .

5. A method of canceling communication system noise interference, the method comprising the steps of:

(a) receiving  $T$  blocks of data,  $Y(:, t)$ ,  $t=1, \dots, T$ , comprising  $T$  blocks of data,  $X(:, t)$ ,  $t=1, \dots, T$ , transmitted over predetermined subchannels;

(b) determining a set of the predetermined subchannels,  $k(n)$ , to generate coefficients for the a multichannel frequency domain equalizer (FEQ) for of a subchannel  $n$  of the predetermined subchannels;

(c) generating multichannel FEQ coefficients,  $g(n)$ , for the  $n^{th}$  subchannel  $n$  of the predetermined subchannels used to transmit the received  $T$  blocks of data; and

(d) performing multichannel ~~(FEQ)~~ frequency domain equalization for the subchannel  $n$  using the generated multichannel FEQ coefficients;

wherein the step of determining a the set of the predetermined subchannels,  $k(n)$ , for a the subchannel  $n$  used to transmit the  $T$  blocks of data includes selecting subchannel  $n$ ;

wherein the step of determining a the set of the predetermined subchannels,  $k(n)$ , for a the subchannel  $n$  used to transmit the  $T$  blocks of data further includes selecting subchannels where radio frequency interference is located.

6. A method of canceling communication system noise interference, the method comprising the steps of:

(a) receiving  $T$  blocks of data,  $Y(:, t)$ ,  $t=1, \dots, T$ , comprising  $T$  blocks of data,  $X(:, t)$ ,  $t=1, \dots, T$ , transmitted over predetermined subchannels;

(b) determining a set of the predetermined subchannels,  $k(n)$ , to generate coefficients for the a multichannel frequency domain equalizer (FEQ) for of subchannel  $n$  of the predetermined subchannels;

(c) generating multichannel FEQ coefficients,  $g(n)$ , for the  $n^{th}$  subchannel  $n$  of the predetermined subchannels used to transmit the received  $T$  blocks of data; and

(d) performing multichannel ~~(FEQ)~~ frequency domain equalization for the subchannel  $n$  using the generated multichannel FEQ coefficients;

wherein the step of determining a the set of the predetermined subchannels,  $k(n)$ , for a the subchannel  $n$  used to transmit the  $T$  blocks of data includes selecting subchannel  $n$ ;

wherein the step of determining a the set of the predetermined subchannels,  $k(n)$ , for a the subchannel  $n$  used to transmit the  $T$  blocks of data further includes selecting subchannels having predetermined noise characteristics.

7. A method of canceling communication system noise interference, the method comprising the steps of:

(a) receiving  $T$  blocks of data,  $Y(:, t)$ ,  $t=1, \dots, T$ , comprising  $T$  blocks of data,  $X(:, t)$ ,  $t=1, \dots, T$ , transmitted over predetermined subchannels;

(b) determining a set of the predetermined subchannels,  $k(n)$ , to generate coefficient for the a multichannel frequency domain equalizer (FEQ) for of subchannel  $n$  of the predetermined subchannels;

(c) generating multichannel FEQ coefficients,  $g(n)$ , for the  $n^{th}$  subchannel  $n$  of the predetermined subchannels used to transmit the received  $T$  blocks of data; and

(d) performing multichannel ~~(FEQ)~~ frequency domain equalization for the subchannel  $n$  using the generated multichannel FEQ coefficients;

wherein the step of generating multichannel FEQ coefficients,  $g(n)$ , for the subchannel  $n$ , comprises solving the equation  $\underline{g(n)} = \underline{Y(n)}^{-1} \underline{x(n)}$   $\underline{g(n)} = \underline{Y(n)}^{-1} \underline{s(n)}$ , where  $\underline{Y(n)}^{-1}$  is the pseudoinverse of a matrix of received data for subchannels  $k(n)$ , and  $\underline{x(n)}$  is a vector of transmitted data for the subchannel  $n$ .

Claim 14 is CANCELLED.

Claim 15 is CANCELLED.

Claim 16 is CANCELLED.

**The instant claims 4-7 are renumbered respectively as claims 1 and 3-5, and the dependency of claim 2 is changed from claim 4 to claim 1.**

***Allowable Subject Matter***

Art Unit: 2638

3. Claims 2 and 4-7 renumbered as claims 1-5 are allowed.

4. The following is an examiner's statement of reasons for allowance:

Claims 2 and 4-7 renumbered as claims 1-5 are allowed because the prior art of record does not disclose or obviate the claimed subject matter wherein a frequency domain equalizer of a particular subchannel in a multichannel receiver utilizes subchannel information from the particular subchannel as well as from neighboring subchannels (i.e. adjacent channels; subchannels where radio frequency interference is located; subchannels having predetermined noise characteristics) to create frequency domain equalizer coefficients to perform frequency domain equalization on the particular subchannel.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

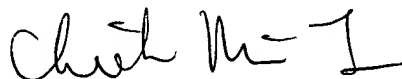
Art Unit: 2638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jason M. Perilla  
August 12, 2005

jmp



CHIEH M. FAN  
PRIMARY EXAMINER